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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,023	02/03/2004	Jason P. Gill	BUR920030118US1	2022
26679	7590	03/31/2006	EXAMINER	
DRIGGS, LUCAS, BRUBAKER & HOGG CO. L.P.A. 38500 CHARDON ROAD DEPT. IBU WILLOUGHBY HILLS, OH 44094			QUINTO, KEVIN V	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,023

Applicant(s)

GILL ET AL.

Examiner

Kevin Quinto

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-14, 17-20, 24-34 and 37-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6, 12, 13, 14, 17, 18, 24-26, 32-34, 37, 38, 41-45, 47-50, 53-57, and 59-62 is/are allowed.
- 6) ☒ Claim(s) 7, 19, 20, 27, 39, 40, 46, 51, 52, 58, 63 and 64 is/are rejected.
- 7) ☒ Claim(s) 8-11 and 28-31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 7-11, 19, 20, 27-31, 39, 40, 46, 51, 52, 58, 63, and 64 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "2126" in figure 21. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 19, 20, 51, and 52 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a thin resistor film, does not reasonably provide enablement for a refractory metal film deposited on the thin resistor film. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. Claim 19 describes a fabrication process for a resistor element in which a contact is formed with a thin resistor film formed on the contact. Claim 19 further states that "a refractory metal film" is deposited on the thin resistor film with an additional conductive metal formed on it. However the examiner is unable to find such a structure within the specification.

5. Claims 39, 40, 63, and 64 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a thin resistor film, does not reasonably provide enablement for a refractory metal film deposited on the thin resistor film. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. Claim 39 describes a resistor element in which a contact is formed to the source or drain implant region with a thin resistor film formed on the contact. Claim 39 further describes "a refractory metal film" which is deposited on the

Art Unit: 2826

thin resistor film. However the examiner is unable to find such a structure within the specification.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning et al. (USPN 5,232,865).

8. In reference to claims 7 and 46, Manning et al. (USPN 5,232,865, hereinafter referred to as the "Manning" reference) discloses a similar process which meets the claims. Figures 6 and 13 of Manning each illustrate a semiconductor device having a contact stud (20A and 20B – figure 6, 20 – figure 13) with an integral resistor (22A and 22B – figure 6, 22 – figure 13). In both figures, there is a substrate (10) having at least one contact area. An insulating layer (16) is formed over the substrate (10) and is in contact with the contact area. There is a contact hole formed in the insulating layer (16) which exposes the contact area. A first conductive material is provided in the contact hole to form a contact stud (20A and 20B – figure 6, 20 – figure 13). The contact stud (20A and 20B – figure 6, 20 – figure 13) has an upper surface and a lower surface. The lower surface is in circuit connection with the contact area. An integral resistor material (22A and 22B – figure 6, 22 – figure 13) is disposed within the contact hole on at least

an upper surface or a lower surface of the contact stud (20A and 20B – figure 6, 20 – figure 13). The integral resistor and contact stud are in a circuit series connection with a gate (figure 7). The integral resistor is in a circuit series connection with the contact stud between the contact area and an electrical node of the semiconductor device. The drain has a composite resistance which is not equal to a source resistance. Manning uses silicon-implanted oxide or silicon-implanted nitride (column 3, lines 29-33) as the resistive material. Manning discloses a resistive material which meets the limitation of claim 7 but does not state the exact resistance as that claimed by applicant. However, since it has been held that where the general conditions of a claim are disposed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Therefore claims 7 and 46 are not patentably distinguishable over the Manning reference.

9. Claims 27 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manning et al. (USPN 5,232,865).

10. In reference to claims 27 and 58, Manning et al. (USPN 5,232,865, hereinafter referred to as the "Manning" reference) discloses a device which meets the claims.

Figures 6 and 13 of Manning each illustrate a semiconductor device having a contact stud (20A and 20B – figure 6, 20 – figure 13) with an integral resistor (22A and 22B – figure 6, 22 – figure 13). In both figures, there is a substrate (10) having at least one contact area. An insulating layer (16) is formed over the substrate (10) and is in contact with the contact area. There is a contact hole formed in the insulating layer (16) which exposes the contact area. A contact stud (20A and 20B – figure 6, 20 – figure 13) is

Art Unit: 2826

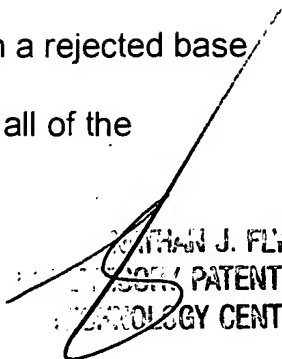
disposed in the contact hole. The contact stud (20A and 20B – figure 6, 20 – figure 13) has an upper surface and a lower surface. The lower surface is in circuit connection with the contact area. An integral resistive material (22A and 22B – figure 6, 22 – figure 13) is disposed within the contact hole on at least an upper surface or a lower surface of the contact stud (20A and 20B – figure 6, 20 – figure 13) so that the resistive material and the contact stud form a local resistor structure. The local resistor structure is in a circuit series connection between the contact area and an electrical node of the semiconductor device. The local resistor structure and contact hole are formed within a transistor drain structure (26). The local resistor structure is in a circuit series connection with a gate (figure 7). The drain has a composite resistance which is not equal to a source resistance. Manning uses silicon-implanted oxide or silicon-implanted nitride (column 3, lines 29-33) as the resistive material. Manning discloses a resistive material which meets the limitation of claim 27 but does not state the exact resistance as that claimed by applicant. However, since it has been held that where the general conditions of a claim are disposed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Therefore claims 27 and 58 are not patentably distinguishable over the Manning reference.

Allowable Subject Matter

11. Claims 4-6, 12, 13, 14, 17, 18, 24-26, 32-34, 37, 38, 41-45, 47-50, 53-57, and 59-62 are allowed.

Art Unit: 2826

12. Claims 8-11 and 28-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


NATHAN J. FLYNN
PATENT EXAMINER
TECHNOLOGY CENTER 2800

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quinto whose telephone number is (571) 272-1920. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KVQ